CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Withdrawn) A nucleic acid array for detecting a cancer associated (CA) nucleic acid comprising : at least two nucleic acid probes each comprising at least 10 contiguous nucleotides of a sequence selected from the group consisting of the polynucleotide sequences SEQ ID NOS : 5,11, 17,19, 21,27, 33,47, 49,51, 53,55, 61,63, 65,71, 81.

2. (Withdrawn) The microarray according to claim 1, comprising at least 15 contiguous nucleotides.

3. (Withdrawn) The microarray according to claim 1, comprising at least 20 contiguous nucleotides.

4. (Withdrawn) A peptide array comprising at least two isolated polypeptides each encoded within an open reading frame of a CA sequence selected from the group consisting of the polynucleotide sequences of SEQ ID NOS: 4,10, 16,26, 32,46, 60,70, 80,96, 114,137, shown in Tables 1-124, or its complement.

5. (Withdrawn) The peptide array of claim 4, wherein said polypeptide comprises the amino acid sequence encoded by a polynucleotide selected from the group consisting of SEQ ID 6. The peptide array of claim 4, wherein said polypeptide comprises the amino acid sequence encoded by a polypeptide selected from the group consisting of SEQ ID NOS: 1435, and 1441 shown in Tables 1-124.

7. (Withdrawn) The peptide array of claim 4, wherein said polypeptide comprises the amino acid sequence of an epitope of the amino acid sequence of a CA polypeptide selected from the group consisting of SEQ ID NOS: 6,12, 18,20, 22,28, 34,48, 50,52, 54,56, 62,64, 66, 8. The peptide array of claim 4, wherein said polypeptide is expressed on a cell surface, wherein the CA protein selected from the group consisting of SEQ ID NOS: 6, and 1441.

9. (Withdrawn) A compound that binds to a polypeptide of the peptide array of claim 4.

10. (Withdrawn) The compound according to claim 9, wherein the compound is chemically synthesized.

11. (Withdrawn) The compound according to claim 9, wherein the compound is naturally occurring.

12. (Withdrawn) An isolated antibody or antigen binding fragment thereof, that binds to a polypeptide comprising the amino acid sequence encoded by a polypeptide according to any one of claims 4-8.

13. (Withdrawn) The isolated antibody or antigen binding fragment thereof according the claim 12, wherein said antibody or fragment thereof is attached to a solid support.

14. (Withdrawn) The isolated antibody or antigen binding fragment thereof according the claim 12, wherein said antibody is a monoclonal antibody.

15. (Withdrawn) The isolated antibody or antigen binding fragment thereof according the claim 12, wherein said antibody is a polyclonal antibody.

16. (Withdrawn) The isolated antibody or antigen binding fragment thereof according the claim 12, wherein said antibody or fragment thereof further comprises a detectable label.

17. (Withdrawn) An isolated antibody that binds to a polypeptide, or antigen binding fragment thereof, according to any of claims 4-8, prepared by a method comprising the steps of : (i) immunizing a host animal with a composition comprising said polypeptide, or antigen binding fragment thereof, and (ii) collecting cells from said host expressing antibodies against the antigen or antigen binding fragment thereof.

18. (Withdrawn) The monoclonal antibody according to claim 14, wherein the monoclonal antibody binds to the extracellular domain of the CA protein.

19. (Withdrawn) The monoclonal antibody according to claim 14, wherein the monoclonal antibody binds to at least one human cancer cell line.

20. (Withdrawn) The monoclonal antibody according to claim 14, wherein the monoclonal antibody is prepared by a process comprising: (a) providing a hybridoma capable of producing the monoclonal antibody; and (b) culturing the hybridoma under conditions that provide for the production of the monoclonal antibody by the hybridoma.

21. (Withdrawn) A hybridoma that produces the monoclonal antibody according to claim 14.

22. (Withdrawn) The antibody according to claim 12, wherein the antibody is a humanized antibody.

23. (Withdrawn) The antibody according to claim 12, wherein the CAP is expressed on a cancer cell surface but not on a normal cell surface.

24. (Withdrawn) The antibody according to claim 12, wherein the CAP is differentially expressed on a cancer cell surface relative to a normal cell surface.

25. (Withdrawn) The antibody according to claim 12 or 14, wherein the antibody is linked to a therapeutic agent.

26. (Withdrawn) A pharmaceutical composition comprising the antibody according to claim 12 and a pharmaceutically acceptable excipient.

27. (Withdrawn) A pharmaceutical composition comprising the antibody according to claim 25 and a pharmaceutically acceptable excipient.

28. (Withdrawn) A kit for detecting cancer cells comprising the antibody according to claim 12.

29. (Withdrawn) A kit for detecting cancer cells comprising the monoclonal antibody according to claim 14.

30. (Withdrawn) A method for detecting a presence or an absence of cancer cells in an individual, the method comprising: contacting cells from the individual with the antibody according to any of claims 12 or 14; and detecting a complex of a CAP from the cancer cells and

the antibody, wherein detection of the complex correlates with the presence of cancer cells in the individual.

31. (Withdrawn) A method for inhibiting growth of cancer cells in an individual, the method comprising: administering to the individual an effective amount of a pharmaceutical composition according to any of claims 26 or 27.

32. (Withdrawn) A method for delivering a therapeutic agent to cancer cells in an individual, the method comprising: administering to the individual an effective amount of a pharmaceutical composition according to any of claims 26 or 27.

33. (Currently Amended) A kit for diagnosing the presence of cancer in a test sample, said kit comprising at least two polynucleotides that selectively hybridize with at least 95% identity to at least two CA polynucleotide sequences selected from the group consisting of the polynucleotide sequences SEQ ID NOS: 4,10, 16,26, 32,46, 60,70, 80,96, 114,137, 153,173, 187,209, 223,229, 235, 243,255, 261,267, 281,293, 303,311, 321,341, 359,367, 375,383, 397,407, 413,427, 449,455, 463,473, 481,491, 499,507, 515,521, 527,541, 547,555, 563,643, 651,659, 669,681, 715,723, 743,749, 759,775, 787,793, 805, 811, 817,823, 833,839, 851,861, 871,879, 899,909, 917,930, 938,950, 966,976, 990,1002, 1016,1024, 1040,1046, 1054,1068, 1082,1088, 1102,1112, 1122,1130, 1140,1151, 1165,1175, 1185, 1193, 1205,1211, 1235,1241, 1255,1267, 1277,1295, 1301,1313, 1349,1357, 1369,1377, 1383,1391, 1403,1411, 1419,1425, 1431, and 1439 shown in Tables 1-124, or its complement.

34. (Currently Amended) A kit for diagnosing the presence of cancer in a test sample, said kit comprising at least two polynucleotides that selectively hybridize with at least 95% identity to at least two CA polynucleotide sequences selected from the group consisting of the polynucleotide sequences SEQ ID NOS: 5,11, 17,19, 21,27, 33,47, 49,51, 53,55, 61,63, 65,71, 81,83, 85,87, 89,97, 99,101, 103,105, 107,109, 115,117, 119,121, 123,125, 127,129, 138,140, 142,144, 146,148, 154,156, 158,160, 162,164, 166, 168, 174,176, 178,180, 188,190, 192,194, 196,198, 200,202, 204,210, 212,214, 216,218, 224,230, 236,238, 244,246, 248,250, 256,262, 268,270, 272,274, 276,282, 284,286, 288,294, 296,298, 304,306, 312,314, 316,322, 324,326, 328,330, 332,342, 344,346, 348,350, 352,354, 360,368, 370,376, 384, 386, 388,390, 392, 398, 400,402, 408,414, 416,418, 420,428, 430,432, 434,436, 438,440, 442,444, 450,456, 458,464,

466,468, 474,476, 482,484, 486,492, 494,500, 508,510, 516,522, 528,530, 532,534, 536,542, 548,550, 556,558, 564,566, 568,570, 572,574, 576,578, 580,582, 584,586, 588,590, 592,594, 596,598, 600,602, 604,606, 608,610, 612,614, 616,618, 620,622, 624,626, 628,630, 632,634, 644,646, 652,654, 660,662, 664,670, 672,674, 676,682, 684,686, 688,690, 692,694, 696,698, 700,702, 704,706, 708,710, 716,718, 724,726, 728,730, 732,734, 736,744, 750,752, 754,760, 776,778, 780, 782, 788,794, 796,798, 800,806, 812,818, 824, 826,828, 834,840, 842, 844,846, 852,854, 856,862, 864,866, 872,874, 880,882, 884,886, 888, 890,892, 894, 900,902, 910,912, 918, 920,922, 931,933, 939,941, 943,945, 951,953, 955,957, 959, 961,967, 969,977, 979,981, 983,985, 991,993, 995,997, 1003,1005, 1017,1025, 1027,1029, 1031,1033, 1035,1041, 1047,1049, 1055,1057, 1059,1061, 1063,1069, 1071,1073, 1075,1077, 1083,1089, 1091,1093, 1103,1105, 1113,1115, 1117,1123, 1125,1131, 1133,1135, 1141,1143, 1145,1147, 1149,1152, 1154,1156, 1158,1160, 1166,1168, 1170,1176, 1178,1180, 1186,1188, 1194,1196, 1198,1200, 1206,1212, 1214,1216, 1218,1220, 1222,1224, 1226,1228, 1230,1236, 1242,1244, 1246,1248, 1250,1256, 1258,1260, 1262,1268, 1270,1272, 1278, 1280,1282, 1284,1286, 1288, 1290,1296, 1302,1304, 1306,1308, 1314,1316, 1318,1320, 1322,1324, 1326,1328, 1330,1332, 1334,1336, 1338,1340, 1342,1350, 1352,1358, 1360,1362, 1364,1370, 1372,1378, 1384,1386, 1392,1394, 1396,1398, 1404,1406, 1412,1414, 1420,1426, 1432, 1434, and 1440 shown in Tables 1-124, a fragment thereof, or their complement.

35.-36. (Cancelled)

37. (Withdrawn) An electronic library comprising a polypeptide, or fragment thereof, comprising at least two CA polypeptide sequences selected from the group consisting of the polypeptide sequences of SEQ ID NOS: 6,12, 18, 20,22, 28,34, 48,50, 52,54, 56,62, 64,66, 72,82, 84,86, 88,90, 98, 100,102, 104,106, 108,110, 116,118, 120, 122, 124, 126,128, 130,139, 141,143, 145,147, 149,155, 157,159, 161,163, 165,167, 169,175, 177,179, 181,189, 191,193, 195,197, 199,201, 203,205, 211,213, 215,217, 219,225, 231,237, 239,245, 247,249, 251,257, 263,269, 271,273, 275,277, 283,285, 287, 289, 295,297, 299,305, 307,313, 315,317, 323,325, 327,329, 331,333, 343,345, 347,349, 351,353, 355,361, 369,371, 377,385, 387,389, 391,393, 399,401, 403,409, 415,417, 419,421, 429,431, 433,435, 437,439, 441,443, 445,451, 457,459, 465,467, 469,475, 477,483, 485,487, 493,495, 501,509, 511,517, 523,529, 531,533, 535,537, 543,549, 551,557, 559,565, 567,569, 571,573, 575,577, 579,581, 583,585, 587,589, 591,593,

595, 597, 599,601, 603,605, 607,609, 611,613, 615,617, 619,621, 623,625, 627,629, 631.633, 635,645, 647,653, 655,661, 663,665, 671,673, 675,677, 683,685, 687,689, 691,693, 695,697, 699,701, 703,705, 707,709, 711, 717,719, 725,727, 729,731, 733, 735,737, 745,751, 753,755, 761,777, 779,781, 783,789, 795,797, 799,801, 807,813, 819,825, 827,829, 835.841, 843.845, 847,853, 855,857, 863,865, 867,873, 875,881, 883,885, 887,889, 891,893, 895,901, 903, 911, 913,919, 921,923, 932,934, 940,942, 944,946, 952,954, 956,958, 960,962, 968,970, 978,980, 982,984, 986,992, 994,996, 998,1004, 1006,1018, 1026,1028, 1030,1032, 1034,1036, 1042,1048, 1050,1056, 1058,1060, 1062,1064, 1070,1072, 1074,1076, 1078,1084, 1090,1092, 1094,1104, 1106,1114, 1116,1118, 1124,1126, 1132,1134, 1136,1142, 1144,1146, 1148,1150, 1153,1155, 1157,1159, 1161,1167, 1169,1171, 1177,1179, 1181,1187, 1189,1195, 1197,1199, 1201,1207, 1213,1215, 1217,1219, 1221,1223, 1225,1227, 1229,1231, 1237,1243, 1245,1247, 1249,1251, 1257,1259, 1261,1263, 1269,1271, 1273,1279, 1281,1283, 1285,1287, 1289,1291, 1297,1303, 1305,1307, 1309,1315, 1317,1319, 1321,1323, 1325,1327, 1329,1331, 1333,1335, 1337,1339, 1341,1343, 1351,1353, 1359,1361, 1363,1365, 1371,1373, 1379,1385, 1387,1393, 1395,1397, 1399,1405, 1407,1413, 1415,1421, 1427,1433, 1435, and 1441 shown in Tables 1-124.

38. (Withdrawn) A method of screening for anticancer activity comprising: (a) providing a cell that expresses a cancer associated (CA) gene encoded by a nucleic acid sequence selected from the group consisting of the sequences SEQ ID NOS: 4,10, 16,26, 32,46, 60,70, 80,96, 114,137, 153,173, 187,209, 223,229, 235,243, 255,261, 267,281, 293,303, 311,321, 341,359, 367,375, 383,397, 407,413, 427,449, 455,463, 473,481, 491,499, 507,515, 521,527, 541,547, 555,563, 643,651, 659,669, 681,715, 723,743, 749,759, 775,787, 793, 805, 811,817, 823, 833, 839,851, 861,871, 879,899, 909,917, 930,938, 950,966, 976,990, 1002,1016, 1024,1040, 1046,1054, 1068, 1082,1088, 1102,1112, 1122, 1130,1140, 1151,1165, 1175,1185, 1193,1205, 1211,1235, 1241,1255, 1267,1277, 1295,1301, 1313,1349, 1357,1369, 1377,1383, 1391, 1403,1411, 1419,1425, 1431, and 1439 shown in Tables 1-124, or fragment thereof; (b) contacting a tissue sample derived from a cancer cell with an anticancer drug candidate ; and (c) monitoring an effect of the anticancer drug candidate on an expression of the CA polynucleotide in the tissue sample.

39. (Withdrawn) The method of screening for anticancer activity according to claim 38, wherein the CA gene comprises at least one nucleic acid sequence selected from the group

consisting of the sequences SEQ ID NOS: 5, 11, 17,19, 21,27, 33,47, 49,51, 53,55, 61, 63,65, 71,81, 83,85, 87,89, 97, 99,101, 103,105, 107,109, 115,117, 119,121, 123, 125,127, 129,138, 140,142, 144,146, 148,154, 156,158, 160,162, 164,166, 168,174, 176,178, 180,188, 190,192, 194,196, 198,200, 202,204, 210,212, 214,216, 218,224, 230,236, 238,244, 246,248, 250,256, 262,268, 270,272, 274,276, 282,284, 286,288, 294,296, 298,304, 306,312, 314,316, 322,324, 326,328, 330,332, 342,344, 346,348, 350,352, 354,360, 368,370, 376,384, 386,388, 390,392, 398,400, 402,408, 414,416, 418,420, 428,430, 432,434, 436,438, 440,442, 444,450, 456,458, 464,466, 468,474, 476,482, 484,486, 492,494, 500,508, 510,516, 522,528, 530,532, 534,536, 542, 548, 550,556, 558, 564,566, 568,570, 572,574, 576,578, 580, 582,584, 586,588, 590,592, 594,596, 598,600, 602,604, 606,608, 610,612, 614,616, 618,620, 622,624, 626,628, 630,632, 634,644, 646,652, 654,660, 662,664, 670,672, 674,676, 682, 684,686, 688, 690,692, 694,696, 698,700, 702,704, 706,708, 710,716, 718,724, 726,728, 730,732, 734,736, 744,750, 752,754, 760,776, 778, 780, 782, 788, 794,796, 798,800, 806,812, 818,824, 826,828, 834,840, 842, 844,846, 852,854, 856,862, 864,866, 872, 874,880, 882,884, 886,888, 890,892, 894,900, 902,910, 912,918, 920,922, 931,933, 939,941, 943,945, 951,953, 955,957, 959,961, 967,969, 977,979, 981, 983,985, 991,993, 995, 997,1003, 1005,1017, 1025,1027, 1029,1031, 1033,1035, 1041,1047, 1049,1055, 1057,1059, 1061,1063, 1069,1071, 1073,1075, 1077,1083, 1089,1091, 1093,1103, 1105,1113, 1115,1117, 1123,1125, 1131, 1133, 1135,1141, 1143,1145, 1147,1149, 1152,1154, 1156,1158, 1160,1166, 1168,1170, 1176, 1178, 1180,1186, 1188,1194, 1196,1198, 1200,1206, 1212,1214, 1216, 1218, 1220,1222, 1224,1226, 1228,1230, 1236, 1242,1244, 1246, 1248, 1250,1256, 1258,1260, 1262,1268, 1270,1272, 1278, 1280,1282, 1284, 1286, 1288,1290, 1296,1302, 1304,1306, 1308,1314, 1316, 1318, 1320,1322, 1324,1326, 1328,1330, 1332,1334, 1336,1338, 1340, 1342,1350, 1352, 1358,1360, 1362,1364, 1370,1372, 1378,1384, 1386,1392, 1394,1396, 1398, 1404, 1406,1412, 1414,1420, 1426, 1432, 1434, and 1440 shown in Tables 1-124.

40. (Withdrawn) The method of screening for anticancer activity according to claim 38, further comprising: (d) comparing the level of expression in the absence of said drug candidate to the level of expression in the presence of the drug candidate.

41. (Withdrawn) The method of screening for anticancer activity according to claim 38, wherein the drug candidate is an inhibitor of transcription and further wherein the nucleic acid

sequence is selected from the group consisting of SEQ ID NOS: 5,11, 17,19, 21,27, 33, 47,49, 51,53, 55,61, 63,65, 71,81, 83, 85, 87, 89, 97, 99,101, 103,105, 107,109, 115, 117,119, 121,123, 125,127, 129,138, 140,142, 144,146, 148,154, 156,158, 160,162, 164,166, 168,174, 176,178, 180,188, 190,192, 194,196, 198, 200,202, 204,210, 212, 214,216, 218,224, 230,236, 238,244, 246,248, 250,256, 262,268, 270,272, 274,276, 282,284, 286,288, 294,296, 298,304, 306,312, 314,316, 322,324, 326,328, 330,332, 342,344, 346,348, 350,352, 354,360, 368,370, 376,384, 386,388, 390,392, 398,400, 402,408, 414,416, 418,420, 428, 430,432, 434,436, 438,440, 442,444, 450,456, 458, 464,466, 468,474, 476,482, 484, 486, 492,494, 500,508, 510,516, 522,528, 530,532, 534,536, 542,548, 550,556, 558,564, 566,568, 570,572, 574,576, 578,580, 582,584, 586,588, 590,592, 594,596, 598,600, 602,604, 606,608, 610,612, 614,616, 618,620, 622,624, 626,628, 630,632, 634,644, 646,652, 654,660, 662,664, 670,672, 674,676, 682,684, 686,688, 690,692, 694,696, 698,700, 702,704, 706,708, 710,716, 718,724, 726,728, 730,732, 734,736, 744,750, 752,754, 760,776, 778,780, 782,788, 794,796, 798,800, 806,812, 818,824, 826,828, 834,840, 842, 844,846, 852, 854, 856,862, 864, 866,872, 874, 880,882, 884,886, 888, 890, 892, 894,900, 902,910, 912,918, 920,922, 931,933, 939,941, 943,945, 951,953, 955,957, 959,961, 967,969, 977,979, 981,983, 985,991, 993,995, 997,1003, 1005,1017, 1025,1027, 1029,1031, 1033,1035, 1041, 1047,1049, 1055,1057, 1059,1061, 1063,1069, 1071,1073, 1075,1077, 1083,1089, 1091,1093, 1103,1105, 1113,1115, 1117,1123, 1125,1131, 1133,1135, 1141,1143, 1145,1147, 1149,1152, 1154, 1156,1158, 1160,1166, 1168,1170, 1176, 1178, 1180, 1186,1188, 1194,1196, 1198,1200, 1206,1212, 1214,1216, 1218,1220, 1222,1224, 1226, 1228,1230, 1236,1242, 1244,1246, 1248,1250, 1256,1258, 1260,1262, 1268, 1270,1272, 1278,1280, 1282,1284, 1286,1288, 1290,1296, 1302,1304, 1306,1308, 1314,1316, 1318,1320, 1322,1324, 1326, 1328, 1330,1332, 1334,1336, 1338,1340, 1342,1350, 1352,1358, 1360,1362, 1364,1370, 1372,1378, 1384,1386, 1392,1394, 1396,1398, 1404,1406, 1412,1414, 1420,1426, 1432,1434, and 1440 shown in Tables 1-124.

42. (Withdrawn) A method for detecting cancer associated with expression of a polypeptide in a test cell sample, comprising the steps of : (i) detecting a level of expression of at least one polypeptide selected from the group consisting of SEQ ID NOS: 6,12, 18,20, 22,28, 34,48, 50,52, 54,56, 62,64, 66, 72,82, 84,86, 88,90, 98,100, 102,104, 106,108, 110,116, 118,120, 122,124, 126, 128,130, 139,141, 143,145, 147,149, 155,157, 159,161, 163,165, 167,169, 175,177, 179,181, 189,191, 193,195, 197,199, 201,203, 205, 211, 213,215, 217,219, 225,231,

237,239, 245,247, 249,251, 257,263, 269,271, 273,275, 277,283, 285,287, 289,295, 297,299, 305,307, 313,315, 317,323, 325,327, 329,331, 333,343, 345,347, 349,351, 353,355, 361,369, 371,377, 385,387, 389,391, 393,399, 401,403, 409,415, 417,419, 421,429, 431,433, 435,437, 439,441, 443,445, 451,457, 459,465, 467,469, 475,477, 483,485, 487,493, 495,501, 509, 511, 517,523, 529,531, 533,535, 537,543, 549,551, 557,559, 565,567, 569,571, 573,575, 577,579, 581,583, 585,587, 589,591, 593,595, 597,599, 601,603, 605,607, 609,611, 613,615, 617,619, 621,623, 625,627, 629,631, 633,635, 645,647, 653,655, 661,663, 665,671, 673,675, 677,683, 685,687, 689,691, 693,695, 697,699, 701,703, 705,707, 709,711, 717,719, 725,727, 729,731, 733,735, 737,745, 751,753, 755,761, 777,779, 781,783, 789,795, 797,799, 801,807, 813,819, 825,827, 829,835, 841,843, 845,847, 853,855, 857,863, 865,867, 873,875, 881,883, 885, 887, 889,891, 893,895, 901,903, 911, 913,919, 921,923, 932,934, 940,942, 944, 946,952, 954,956, 958,960, 962,968, 970,978, 980,982, 984, 986,992, 994,996, 998, 1004,1006, 1018,1026, 1028,1030, 1032,1034, 1036,1042, 1048,1050, 1056,1058, 1060,1062, 1064,1070, 1072,1074, 1076,1078, 1084,1090, 1092,1094, 1104,1106, 1114,1116, 1118,1124, 1126,1132, 1134,1136, 1142,1144, 1146,1148, 1150,1153, 1155,1157, 1159,1161, 1167,1169, 1171,1177, 1179,1181, 1187,1189, 1195,1197, 1199, 1201,1207, 1213,1215, 1217,1219, 1221,1223, 1225,1227, 1229,1231, 1237, 1243,1245, 1247,1249, 1251,1257, 1259,1261, 1263,1269, 1271,1273, 1279, 1281, 1283,1285, 1287,1289, 1291,1297, 1303,1305, 1307,1309, 1315,1317, 1319,1321, 1323,1325, 1327,1329, 1331,1333, 1335,1337, 1339,1341, 1343,1351, 1353,1359, 1361,1363, 1365,1371, 1373,1379, 1385,1387, 1393,1395, 1397,1399, 1405,1407, 1413,1415, 1421,1427, 1433,1435, and 1441 shown in Tables 1-124, or a fragment thereof; and (ii) comparing the level of expression of the polypeptide in the test sample with a level of expression of polypeptide in a normal cell sample, wherein an altered level of expression of the polypeptide in the test cell sample relative to the level of polypeptide expression in the normal cell sample is indicative of the presence of cancer in the test cell sample.

43. (Withdrawn) A method for detecting cancer associated with expression of a polypeptide in a test cell sample, comprising the steps of : (i) detecting a level of activity of at least one polypeptide selected from the group consisting of SEQ ID NOS: 6,12, 18,20, 22,28, 34,48, 50,52, 54,56, 62,64, 66,72, 82, 84,86, 88,90, 98,100, 102,104, 106,108, 110,116, 118,120, 122,124, 126,128, 130,139, 141,143, 145,147, 149,155, 157,159, 161,163, 165,167, 169,175, 177,179, 181,189, 191,193, 195,197, 199,201, 203,205, 211,213, 215, 217, 219,225, 231,237,

239,245, 247,249, 251,257, 263,269, 271,273, 275, 277, 283, 285,287, 289,295, 297, 299,305, 307,313, 315,317, 323,325, 327,329, 331,333, 343,345, 347,349, 351,353, 355,361, 369,371, 377,385, 387,389, 391,393, 399,401, 403,409, 415,417, 419,421, 429,431, 433,435, 437,439, 441,443, 445,451, 457,459, 465,467, 469,475, 477,483, 485,487, 493,495, 501,509, 511, 517,523, 529,531, 533,535, 537,543, 549,551, 557, 559,565, 567,569, 571,573, 575,577, 579,581, 583,585, 587, 589, 591, 593,595, 597, 599,601, 603,605, 607, 609, 611, 613,615, 617,619, 621,623, 625, 627, 629, 631,633, 635,645, 647,653, 655,661, 663,665, 671,673, 675,677, 683, 685, 687, 689,691, 693, 695,697, 699,701, 703,705, 707,709, 711,717, 719,725, 727,729, 731,733, 735,737, 745,751, 753,755, 761,777, 779,781, 783,789, 795,797, 799,801, 807,813, 819, 825, 827,829, 835,841, 843, 845, 847,853, 855, 857,863, 865,867, 873, 875, 881, 883,885, 887,889, 891,893, 895,901, 903, 911, 913, 919,921, 923,932, 934,940, 942,944, 946, 952,954, 956,958, 960,962, 968,970, 978,980, 982,984, 986,992, 994,996, 998, 1004,1006, 1018,1026, 1028,1030, 1032,1034, 1036, 1042, 1048, 1050,1056, 1058, 1060,1062, 1064,1070, 1072,1074, 1076,1078, 1084, 1090,1092, 1094,1104, 1106, 1114,1116, 1118,1124, 1126, 1132, 1134,1136, 1142,1144, 1146,1148, 1150,1153, 1155,1157, 1159,1161, 1167,1169, 1171,1177, 1179,1181, 1187, 1189, 1195,1197, 1199,1201, 1207, 1213, 1215, 1217, 1219, 1221, 1223,1225, 1227,1229, 1231,1237, 1243,1245, 1247,1249, 1251,1257, 1259,1261, 1263,1269, 1271, 1273, 1279, 1281, 1283,1285, 1287, 1289, 1291,1297, 1303, 1305, 1307,1309, 1315,1317, 1319,1321, 1323,1325, 1327,1329, 1331,1333, 1335,1337, 1339,1341, 1343,1351, 1353,1359, 1361,1363, 1365,1371, 1373,1379, 1385,1387, 1393,1395, 1397,1399, 1405,1407, 1413,1415, 1421,1427, 1433,1435, and 1441 shown in Tables 1-124, or a fragment thereof, wherein said activity corresponds to at least one activity for the polypeptide listed in Tables 1-124 ; and (ii) comparing the level of activity of the polypeptide in the test sample with a level of activity of polypeptide in a normal cell sample, wherein an altered level of activity of the polypeptide in the test cell sample relative to the level of polypeptide activity in the normal cell sample is indicative of the presence of cancer in the test cell sample.

44. (Withdrawn) A method for detecting cancer associated with the presence of an antibody in a test serum sample, comprising the steps of : (i) detecting a level of an antibody against an antigenic polypeptide selected from the group consisting of SEQ ID NOS: 6,12, 18,20, 22,28, 34,48, 50,52, 54,56, 62,64, 66,72, 82,84, 86, 88, 90,98, 100,102, 104,106, 108,110, 116,118, 120,122, 124,126, 128,130, 139,141, 143,145, 147,149, 155,157, 159,161, 163,165,

167,169, 175,177, 179,181, 189,191, 193,195, 197,199, 201,203, 205, 211, 213,215, 217,219, 225, 231, 237,239, 245,247, 249,251, 257,263, 269,271, 273,275, 277,283, 285,287, 289,295, 297,299, 305,307, 313,315, 317,323, 325,327, 329,331, 333,343, 345,347, 349,351, 353,355, 361,369, 371,377, 385,387, 389,391, 393,399, 401,403, 409,415, 417,419, 421,429, 431,433, 435,437, 439,441, 443,445, 451,457, 459,465, 467,469, 475, 477, 483,485, 487,493, 495,501, 509, 511, 517,523, 529,531, 533,535, 537,543, 549,551, 557,559, 565,567, 569,571, 573,575, 577,579, 581, 583, 585,587, 589,591, 593,595, 597,599, 601,603, 605,607, 609, 611, 613,615, 617,619, 621,623, 625,627, 629,631, 633,635, 645,647, 653,655, 661,663, 665,671, 673,675, 677,683, 685,687, 689, 691, 693,695, 697,699, 701,703, 705,707, 709,711, 717,719, 725,727, 729,731, 733,735, 737,745, 751,753, 755,761, 777,779, 781,783, 789,795, 797,799, 801,807, 813,819, 825,827, 829,835, 841,843, 845,847, 853,855, 857, 863,865, 867,873, 875, 881, 883, 885,887, 889,891, 893,895, 901,903, 911,913, 919,921, 923,932, 934,940, 942,944, 946,952, 954,956, 958,960, 962,968, 970,978, 980,982, 984,986, 992,994, 996,998, 1004,1006, 1018,1026, 1028,1030, 1032,1034, 1036,1042, 1048,1050, 1056,1058, 1060, 1062, 1064, 1070,1072, 1074,1076, 1078,1084, 1090,1092, 1094,1104, 1106, 1114,1116, 1118,1124, 1126,1132, 1134,1136, 1142,1144, 1146,1148, 1150,1153, 1155,1157, 1159,1161, 1167,1169, 1171,1177, 1179,1181, 1187,1189, 1195,1197, 1199,1201, 1207,1213, 1215,1217, 1219,1221, 1223,1225, 1227,1229, 1231,1237, 1243,1245, 1247,1249, 1251,1257, 1259,1261, 1263,1269, 1271,1273, 1279,1281, 1283,1285, 1287,1289, 1291,1297, 1303,1305, 1307,1309, 1315,1317, 1319,1321, 1323,1325, 1327,1329, 1331,1333, 1335,1337, 1339,1341, 1343,1351, 1353,1359, 1361,1363, 1365,1371, 1373,1379, 1385,1387, 1393,1395, 1397,1399, 1405,1407, 1413,1415, 1421,1427, 1433, 1435, and 1441 shown in Tables 1-124, or antigenic fragment thereof; and (ii) comparing said level of said antibody in the test sample with a level of said antibody in the control sample, wherein an altered level of antibody in said test sample relative to the level of antibody in the control sample is indicative of the presence of cancer in the test serum sample.

45. (Withdrawn) A method for screening for a bioactive agent capable of modulating the activity of a CA protein (CAP), wherein said CAP is encoded by a nucleic acid comprising a nucleic acid sequence selected from the group consisting of the polynucleotide sequences SEQ ID NOS : 5,11, 17,19, 21,27, 33,47, 49,51, 53,55, 61,63, 65,71, 81, 83,85, 87,89, 97,99, 101,103, 105,107, 109,115, 117,119, 121,123, 125,127, 129,138, 140,142, 144,146, 148,154, 156,158, 160,162, 164,166, 168,174, 176,178, 180, 188,190, 192, 194,196, 198,200, 202,204, 210,212,

214, 216, 218,224, 230,236, 238, 244, 246,248, 250,256, 262,268, 270,272, 274,276, 282,284, 286,288, 294,296, 298,304, 306,312, 314,316, 322,324, 326,328, 330,332, 342,344, 346,348, 350,352, 354,360, 368,370, 376,384, 386,388, 390,392, 398,400, 402, 408, 414,416, 418,420, 428,430, 432,434, 436,438, 440,442, 444,450, 456, 458, 464,466, 468,474, 476,482, 484,486, 492,494, 500, 508, 510,516, 522,528, 530,532, 534,536, 542,548, 550,556, 558, 564,566, 568, 570,572, 574,576, 578,580, 582,584, 586,588, 590,592, 594,596, 598,600, 602,604, 606,608, 610,612, 614,616, 618,620, 622,624, 626,628, 630,632, 634,644, 646,652, 654,660, 662,664, 670,672, 674,676, 682,684, 686,688, 690,692, 694,696, 698,700, 702,704, 706,708, 710,716, 718,724, 726,728, 730,732, 734,736, 744,750, 752,754, 760,776, 778,780, 782,788, 794,796, 798,800, 806,812, 818, 824,826, 828,834, 840, 842,844, 846,852, 854,856, 862,864, 866,872, 874,880, 882, 884, 886,888, 890,892, 894,900, 902,910, 912,918, 920,922, 931,933, 939,941, 943,945, 951,953, 955,957, 959,961, 967,969, 977,979, 981,983, 985,991, 993,995, 997,1003, 1005,1017, 1025, 1027,1029, 1031,1033, 1035,1041, 1047,1049, 1055,1057, 1059,1061, 1063,1069, 1071,1073, 1075,1077, 1083,1089, 1091,1093, 1103,1105, 1113,1115, 1117,1123, 1125,1131, 1133,1135, 1141,1143, 1145,1147, 1149,1152, 1154,1156, 1158,1160, 1166,1168, 1170,1176, 1178,1180, 1186,1188, 1194,1196, 1198,1200, 1206,1212, 1214,1216, 1218, 1220,1222, 1224,1226, 1228,1230, 1236,1242, 1244,1246, 1248, 1250,1256, 1258,1260, 1262,1268, 1270,1272, 1278,1280, 1282,1284, 1286,1288, 1290,1296, 1302,1304, 1306,1308, 1314,1316, 1318,1320, 1322,1324, 1326,1328, 1330,1332, 1334,1336, 1338,1340, 1342,1350, 1352,1358, 1360,1362, 1364,1370, 1372,1378, 1384,1386, 1392,1394, 1396,1398, 1404,1406, 1412,1414, 1420,1426, 1432,1434, and 1440 shown in Tables 1-124, said method comprising: a) combining said CAP and a candidate bioactive agent; and b) determining the effect of the candidate agent on the bioactivity of said CAP.

46. (Withdrawn) The method of screening for the bioactive agent according to claim 45, wherein the bioactive agent affects the expression of the CA protein (CAP).

47. (Withdrawn) The method of screening for the bioactive agent according to claim 45, wherein the bioactive agent affects the activity of the CA protein (CAP), wherein such activity is selected from the activities listed in Tables 1-124.

48. (Withdrawn) The method of screening for the bioactive agent according to claim 45, wherein the bioactive agent is a modulator of an activity selected from the group consisting of : tumor suppressor, low density lipoprotein receptor, G protein coupled receptor, apoptosis inhibitor, ion transport, calcium binding, cell adhesion, signalling, protein kinase receptor, and signal transduction.

49. (Withdrawn) A method for diagnosing cancer comprising: a) determining the expression of one or more genes comprising a nucleic acid sequence selected from the group consisting of the human genomic and mRNA sequences outlined in Tables 1-124, in a first tissue type of a first individual; and b) comparing said expression of said gene (s) from a second normal tissue type from said first individual or a second unaffected individual; wherein a difference in said expression indicates that the first individual has cancer.

50. (Withdrawn) A method for treating cancers comprising administering to a patient an inhibitor of a CA protein (CAP), wherein said CAP is encoded by a nucleic acid comprising a nucleic acid sequence selected from the group consisting of the human nucleic acid sequences in Tables 1-124.

51. (Withdrawn) The method for treating cancers according to claim 50, wherein the inhibitor of a CA protein (CAP) binds to the CA protein.

52. (Withdrawn) A method for inhibiting expression of a cancer associated (CA) gene in a cell comprising: contacting a cell expressing a CA gene with a double stranded RNA comprising a sequence capable of hybridizing to a cancer associated (CA) mRNA corresponding to the polynucleotide sequences of SEQ ID NOS: 5,11, 17,19, 21,27, 33,47, 49,51, 53,55, 61,63, 65,71, 81,83, 85, 87, 89,97, 99,101, 103,105, 107,109, 115,117, 119,121, 123,125, 127,129, 138,140, 142,144, 146,148, 154,156, 158,160, 162,164, 166,168, 174,176, 178, 180,188, 190,192, 194,196, 198,200, 202,204, 210,212, 214,216, 218, 224,230, 236, 238, 244,246, 248, 250,256, 262,268, 270,272, 274,276, 282,284, 286, 288,294, 296,298, 304,306, 312,314, 316,322, 324,326, 328,330, 332,342, 344,346, 348,350, 352,354, 360,368, 370,376, 384, 386, 388,390, 392,398, 400,402, 408,414, 416,418, 420,428, 430,432, 434,436, 438,440, 442,444, 450,456, 458,464, 466,468, 474,476, 482,484, 486,492, 494,500, 508,510, 516,522, 528,530, 532,534, 536,542, 548,550, 556,558, 564,566, 568,570, 572,574, 576,578, 580,582, 584,

586,588, 590, 592,594, 596,598, 600,602, 604,606, 608,610, 612,614, 616,618, 620, 622,624, 626, 628,630, 632,634, 644,646, 652, 654, 660,662, 664,670, 672,674, 676,682, 684,686, 688,690, 692,694, 696,698, 700,702, 704,706, 708,710, 716,718, 724,726, 728,730, 732,734, 736,744, 750,752, 754,760, 776,778, 780,782, 788,794, 796,798, 800,806, 812, 818, 824,826, 828, 834, 840, 842, 844,846, 852,854, 856,862, 864,866, 872,874, 880,882, 884,886, 888,890, 892,894, 900,902, 910,912, 918,920, 922,931, 933,939, 941,943, 945,951, 953,955, 957,959, 961,967, 969,977, 979,981, 983,985, 991,993, 995,997, 1003,1005, 1017,1025, 1027,1029, 1031,1033, 1035,1041, 1047,1049, 1055,1057, 1059,1061, 1063,1069, 1071,1073, 1075,1077, 1083,1089, 1091,1093, 1103,1105, 1113,1115, 1117, 1123, 1125,1131, 1133,1135, 1141,1143, 1145,1147, 1149,1152, 1154,1156, 1158, 1160, 1166,1168, 1170,1176, 1178, 1180, 1186,1188, 1194,1196, 1198,1200, 1206,1212, 1214,1216, 1218,1220, 1222,1224, 1226, 1228, 1230,1236, 1242,1244, 1246,1248, 1250,1256, 1258, 1260, 1262,1268, 1270,1272, 1278,1280, 1282,1284, 1286,1288, 1290,1296, 1302,1304, 1306,1308, 1314,1316, 1318,1320, 1322,1324, 1326,1328, 1330,1332, 1334,1336, 1338,1340, 1342,1350, 1352,1358, 1360,1362, 1364,1370, 1372,1378, 1384, 1386, 1392,1394, 1396,1398, 1404,1406, 1412,1414, 1420,1426, 1432,1434, and 1440 shown in Tables 1-124, in an amount sufficient to elicit RNA interference; and inhibiting expression of the CA gene in the cell.

53. (Withdrawn) The method of claim 52, wherein the double stranded RNA is provided by introducing a short interfering RNA (siRNA) into the cell by a method selected from the group consisting of transfection, electroporation, and microinjection.

54. (Withdrawn) The method of claim 52, wherein the double stranded RNA is provided by introducing a short interfering RNA (siRNA) into the cell by an expression vector.

55. (Withdrawn) An anti-cancer drug candidate identified by a method according to any of claims 38, 39, 40,41, 45,46, 47 and 48.